

Claims

1. A spark plug comprising: an insulator having a through-hole formed in an axial direction; a terminal attachment disposed on one end side of said insulator; a center electrode disposed on other end side of said insulator; and an electrically conductive connection layer disposed in said through-hole for electrically connecting said terminal attachment and said center electrode to each other, said electrically conductive connection layer including at least 10 one electrically conductive sealing layer connected to at least one of said terminal attachment and said center electrode, wherein said electrically conductive sealing layer is made of electrically conductive glass containing a glass component, and a metal component which at least contains a Cu-Zn 15 alloy.

2. The spark plug as claimed in claim 1, wherein substantially all Zn contained in said metal component is alloyed.

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3. A method for producing a spark plug including an insulator having a through-hole formed in an axial direction, a terminal attachment disposed on one end side of said insulator, a center electrode disposed on other end side of 25 said insulator, and an electrically conductive connection

layer disposed in said through-hole for electrically connecting said terminal attachment and said center electrode to each other, said electrically conductive connection layer including at least one electrically conductive sealing layer 5 connected to at least one of said terminal attachment and said center electrode, said method comprising the steps of: filling said through-hole of said insulator with electrically conductive glass powder containing glass powder and metal powder containing at least Cu-Zn alloy powder; and softening 10 said electrically conductive glass powder to form said electrically conductive sealing layer.

4. The method for producing a spark plug as claimed in claim 3, wherein said electrically conductive glass powder 15 contains said metal powder larger than 30 mass% and smaller than 75 mass%.

5. The method for producing a spark plug as claimed in claim 3 or 4, wherein said metal powder contains said Cu-Zn 20 alloy powder larger than 10 mass%.

6. The method for producing a spark plug as claimed in any one of claims 3 to 5, wherein said metal powder contains said Cu-Zn alloy powder larger than 50 mass%.

7. The method for producing a spark plug according to any one of claims 3 to 6, wherein said metal powder does not contain any non-alloyed Zn powder.

5 8. The method for producing a spark plug as claimed in any one of claims 3 to 7, wherein said Cu-Zn alloy powder contains 5 to 40 mass% of Zn.

10 9. The method for producing a spark plug as claimed in any one of claims 3 to 8, wherein said electrically conductive glass powder contains inorganic oxide of semiconductor as at least one member selected from In, Sn, Cr, V and Ti.

15 10. The method for producing a spark plug as claimed in claim 9, wherein said electrically conductive glass powder contains said semiconductor inorganic oxide smaller than 10 parts by mass when a total amount of said glass powder and said metal powder is 100 parts by mass.

20 11. The method for producing a spark plug as claimed in any one of claims 3 to 10, wherein a mean particle size of said metal powder is not smaller than 5  $\mu\text{m}$  and not larger than 40  $\mu\text{m}$ .